A Comparison of Sequenced Individual and Group Psychotherapy for Patients with Bulimia Nervosa

Lauri Nevonen, PhD[1,2*]
Anders G. Broberg, PhD[3]

ABSTRACT

Objective: The current study examined the effectiveness of individual (IND) versus group (GRP) therapy for patients with bulimia nervosa (BN), using a manual of sequenced treatment with cognitive-behavioral therapy (CBT) followed by interpersonal psychotherapy (IPT).

Method: Eighty-six participants with BN were matched and randomized to 23 sessions of IND or GRP. Participants were measured pretreatment and posttreatment and at 1-year and 2.5-year follow-ups using both intent-to-treat and completer samples.

Results: The intent-to-treat analysis revealed that the percentage of participants recovered and remitted was equivalent between IND and GRP. Significant group differences were found between completers on binge eating and compensatory behavior with greater improvement for IND. On most measures, effect sizes were larger for IND at 1-year follow-up.

Conclusion: Sequencing CBT and IPT worked well in both IND and GRP formats. We found few outcome differences between IND as opposed to GRP. © 2005 by Wiley Periodicals, Inc.

Keywords: bulimia nervosa; sequenced therapy; cognitive-behavioral therapy; interpersonal psychotherapy group psychotherapy; clinical trial

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Introduction

Individual therapy (IND) is the most commonly used treatment for bulimia nervosa (BN), but several researchers have used group therapy (GRP) and found it to be effective.[1–4] A recent study by Chen et al.[5] compared individual cognitive-behavioral therapy (CBT) with group CBT for BN and found that the effects of both treatments were equivalent by most measures, except for binge eating at posttreatment; participants in IND were significantly more abstinent. They also found dropout rates (defined as not attending treatment or assessment, or not responding to three telephone calls and a personal letter) to be similar in IND and GRP. Seventy-three percent completed treatment, and 62% also completed the posttreatment and follow-up assessments. Other studies of IND and GRP for BN have also shown considerable dropout rates (ranging from 5% to 40%, with a median of approximately 20%),[6] and higher dropout rates for GRP than for IND in some studies.[6]

Despite major advances in the treatment of BN, insufficient progress continues to be a problem. Agras[7] and Wilson[8] maintain that only approximately 30%–50% entering treatment will be abstinent from binge eating and purging at follow-up. Moreover, when CBT, which is regarded as the gold standard in the treatment of BN, has been compared with interpersonal psychotherapy (IPT), it has shown a significantly more rapid effect at posttreatment but no significant difference at follow-up.[9,10]

CBT targets the abnormal eating patterns and the underlying distorted thinking regarding food, body shape, and weight, characterizing BN. According to Fairburn et al.[11] CBT also has an effect on interpersonal problems, which are common in patients with BN. The efficacy of individual CBT in the treatment of BN is well supported.[9,10,12] IPT, which is short-term focal psychotherapy, originating from the treatment of depression and subsequently adjusted for work with eating disorders,[13] has also been shown to be effective for BN.[11] According to Agras,[7] binge eating is triggered by interpersonal problems, and therapy directed towards such problems reduces binge eating.

Garner and Needleman[14] suggested that IPT could be integrated into CBT treatment for BN

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Correspondence to: Lauri Nevonen, PhD, Anorexia-Bulimia Unit, Queen Silvia Children's Hospital, Child and Adolescent Psychiatry Center, s-461 85 Göteborg, Sweden. E-mail: Lauri.Nevonen@vgregion.se
[1] Anorexia-Bulimia Unit, Queen Silvia Children's Hospital, Göteborg, Sweden
[2] National Resource Center for Eating Disorders, örebro, Sweden
[3] Department of Psychology, Göteborg University, Göteborg, Sweden
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patients who fail to respond to CBT alone. The National Institute of Mental Health (NIHM)[15] workshop on research on eating disorders concluded, with reference to improving treatment for BN, that CBT manuals could be enriched by incorporating interpersonal and family issues to target emotional dysregulation, which appears to lead to binge eating. Clinically, treatment of eating disorders often sequences psychoeducation, nutrition, medication, and psychological interventions in both outpatient and inpatient formats, especially when one treatment approach fails. Researchers have started to recommend treatment sequencing as an area for future treatment research.[12]

Mitchell et al.[16] conducted a sequenced multicenter treatment study of women with BN. All the participants were initially treated with individual CBT. Twenty-eight percent who had dropped out from the CBT treatment and 32% who did not respond to the treatment were randomized to IPT or antidepressant medication. Response rates were low among participants assigned to the additional treatments, and dropping out of treatment was common. There was no significant difference between IPT and antidepressive medication for either the intention-to-treat or completer samples.

It is hypothesized that CBT and IPT, which have both been adapted for group psychotherapy,[17,18] work through different mechanisms but reach the same outcome, and it has been suggested[19] that bulimic women with more impulsiveness and affect instability may gain more from IPT, whereas patients whose concerns about eating habits, body shape, and weight dominate the clinical picture could achieve more from CBT. Because this distinction is hard to make before treatment begins, and because patients with severe bulimic symptoms usually also have significant interpersonal problems, a treatment design in accordance with the NIHM suggestions, is worth testing.

Nevonen et al.[20] conducted a pilot study in which they tested a sequenced group psychotherapy model for BN and eating disorder not otherwise specified (EDNOS) with CBT, followed immediately by IPT. Significant pretreatment to posttreatment and pretreatment to 1-year follow-up differences were demonstrated for eating disorder symptoms and attitudes, as well as for interpersonal difficulties and general psychopathology. Dropping out of treatment was rare (4 of 29 patients), and consumer satisfaction ratings were high. Many participants praised the combination of focusing on disordered eating and disordered interpersonal relations. It was hypothesized that the sequenced treatment model used in the study affects both eating habits and interpersonal functioning in a circular pattern and takes advantage of the faster CBT effect at posttreatment as well as the increasing IPT effect at follow-up within the same treatment. The treatment is therefore expected to reduce eating disorder symptoms as well as interpersonal problems at posttreatment, with sustained improvement at follow-up.

The current investigation was designed to determine whether our sequenced group treatment would prove as effective as sequenced individual treatment in terms of recovery and remission, clinical ratings and self-reports of eating disorder symptoms, interpersonal problems, and concomitant psychopathology for patients with DSM-IV–confirmed BN (as defined in the 4th ed. of the Diagnostic and Statistical Manual of Mental Disorders. Washington, DC: American Psychiatric Association; 1994). We were particularly interested in attrition and long-term (2.5-year) follow-up results. All analyses were done using both an intention-to-treat and a completer sample.

Method

Subjects and Procedure

One hundred thirty-eight consecutive females 18–24 years of age with bulimic symptoms (of whom 34 were referrals from primary care) who were on the waiting list at the Anorexia and Bulimia Outpatient Unit (ABOU) at the Child and Adolescent Psychiatry Center, Queen Silvia Children's Hospital (Göteborg, Sweden), were asked to participate in a randomized, controlled treatment trial. Eighteen, the lower age range used in the current study, is based on the age when Swedish adolescents formally become adults and 24 is the upper age limit for the ABOU. One subject refused entry to screening, but 137 participants met two therapists, one representing IND and one representing GRP for that particular treatment period, to avoid treatment bias, for an initial screening interview to investigate the following inclusion criteria: (a) being of female gender, (b) being 18–24 years of age, (c) meeting DSM-IV criteria for BN, (d) accepting both IND and GRP, and (e) having a body mass index (BMI) > 18 kg/m^2. Exclusion criteria were (a) current alcohol and/or drug abuse, (b) current psychotic disorder, (c) current receipt of psychopharmacologic medication and/or psychotherapy, and (d) suicidal behavior. The purpose of the study was explained after the screening interview and informed consent was obtained from all participants. Forty-four participants did not meet the diagnostic inclusion criteria for BN (most of whom complied with the criteria for EDNOS,

Type III), 3 were excluded because they were receiving other forms of treatment, and 1 was excluded because of suicidal behavior. Three subjects never showed up at the baseline assessment. Therefore, the preassessment sample consisted of 86 subjects.

One independent psychologist at pretreatment who was blind to treatment conditions, one independent psychiatrist together with a psychiatric nurse at posttreatment, the former therapists at the 1-year follow-up, and independent psychologists at the 2.5-year follow-up measured all the participants individually. In all, 86 participants were first matched in pairs based on their pretreatment total Eating Disorder Inventory-2 (EDI-2) score, and were then randomized to either the IND ($n = 42$) or GRP sample ($n = 44$). We used this procedure to minimize differences between groups on eating disorder symptoms as well as related psychopathology. Once randomization had been completed, all subjects received a letter containing information about the kind of treatment they were being offered, and about the first treatment appointment. As shown in Figure 1, 4 individuals, all randomized to GRP, chose not to begin treatment. The treatment sample therefore consisted of 82 individuals (IND, $n = 42$; GRP, $n = 40$). Seventy-four (86%) completed the posttreatment assessment (IND, $n = 40$; GRP, $n = 34$). Seventy-four participants (86%) completed the 1-year follow-up assessment (IND, $n = 38$; GRP, $n = 36$) and 69 (80%) completed the 2.5-year follow-up assessment (IND, $n = 38$; GRP, $n = 31$) (Figure 1).

Treatment

The sequenced GRP and IND treatments were conducted at an outpatient unit. GRP consisted of 23 sessions over a period of 20 weeks. Group sessions were 2 hr in the evening between 5 p.m. and 7 p.m., and occurred twice weekly for the first 3 weeks, and weekly thereafter for 17 weeks. The individual sessions were 50–60 min weekly for 23 weeks. Each semester (September–January or January–June), a maximum of 8 participants were treated in GRP and 8 in IND.

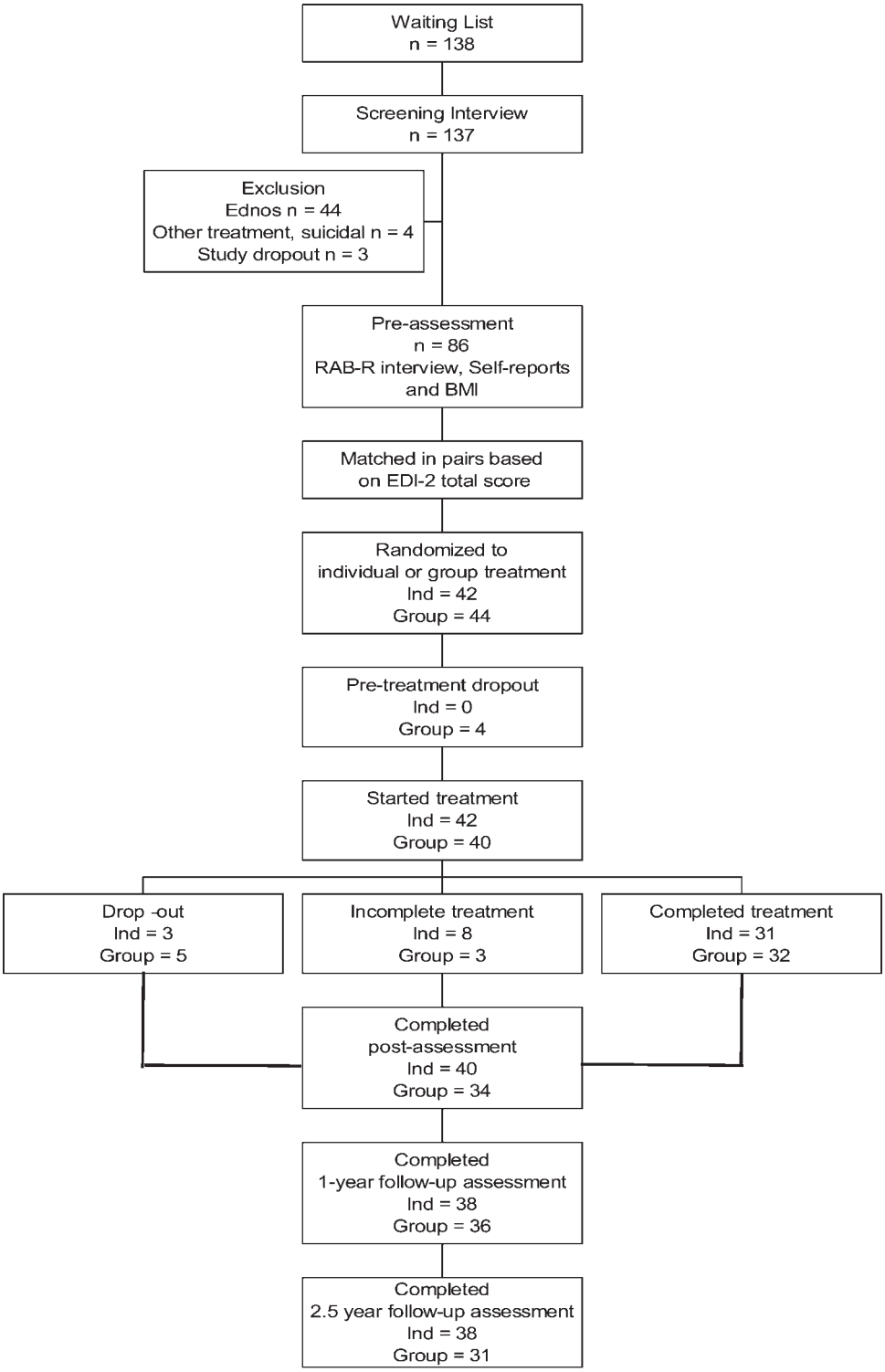
GRP is based on a detailed treatment manual,[21] previously tested in our pilot study, which is based on published CBT[22] and IPT[23] manuals. A brief version in English is available on request from the authors. IND followed the group treatment manual with individual modifications for each participant.The CBT used in the current study is a concise treatment including key elements (e.g., cognitive view, homework with self-monitoring sheets, dysfunctional eating patterns, identification of binge eating, information about self-esteem, dieting, body/weight/shape, binge eating, compensatory behaviors and physical consequences, shape/weight and cognitive distortions, coping strategies, and relapse prevention) of CBT. If interpersonal problems arose during the CBT treatment, therapists referred the subjects to the upcoming IPT. IPT[24] was adapted for eating disorders by Fairburn[13] and focuses on current interpersonal problem areas (grief, interpersonal disputes, role transitions, and interpersonal deficits) in an eating disorder context. Participants are encouraged to recognize, accept, and express their interpersonal experience and attempt other ways of functioning. The IPT used in the current study was of shorter duration compared with what has been described elsewhere.[13] The sequenced treatment is divided into two phases. The first phase, of 10 sessions, is symptom focused and based on CBT techniques, whereas the second phase, of 13 sessions, is interpersonally focused and based on IPT techniques. Each session starts with a reminder regarding how many sessions are left. During the first part of the treatment, relatives and peers are invited to a psychoeducational meeting lasting approximately 2 hr. In our pilot study,[20] some patients kept asking questions about food, eating behaviors, and other related subjects during the IPT phase, when they were supposed to focus on interpersonal issues. All the participants therefore received a CBT self-help manual, developed specifically for the current study, at the final CBT session and we referred participants to this during the IPT phase of treatment. During the final CBT session, participants were also assigned homework for the following intermediate individual meeting at which the participants reviewed their interpersonal functioning before and since the development of the eating disorder, as well as major life events and problems with self-esteem and depression. A clinical evaluation of the CBT part took place during the intermediate session, with an in-depth interview to identify interpersonal problem areas to work on in the IPT part. After the treatment, all participants met one therapist in an individual session for a clinical evaluation of the treatment protocol.

Therapists

Four senior psychotherapists (three females and one male), all authorized by the Swedish National Board of Health and Welfare, with long experience of treating eating-disordered patients, conducted both the IND and GRP. We used a revolving schedule to control for the "therapist factor." Therapists A and B were randomly assigned to conduct GRP during the first semester, whereas Therapists C and D conducted IND. During the next semester, Therapists D and A conducted GRP and Therapists B and C conducted IND, and so on throughout the trial. The therapists were directive and educative during the CBT part, and nondirective, keeping the focus on the interpersonal problem areas, in the IPT part.

We used a crude measure of establishing therapist adherence to the treatment manual. Four randomly chosen group CBT and four group IPT sessions were videotaped and rated by two independent raters. We used a

FIGURE 1. Summary of participant flow.



methodology in which both raters observed only 3 randomly selected min from each of the eight videotapes. The raters were 87.5% (14 of 16 correct observations) accurate in correctly identifying the eight sessions as CBT or IPT and both raters failed on the same videoclip.

Pharmacologic Treatment

Sixteen participants who completed the treatment (IND, $n = 11$; GRP, $n = 5$) received selective serotonin reuptake inhibitor (SSRI) medication during the treat-

ment period. The difference between groups was not significant (Fisher's exact test, $p > .10$).

Assessments

A battery of instruments were used to assess eating disorder symptoms and general psychopathology including

The Rating of Anorexia and Bulimia Interview (RAB),[25] which is a semistructured interview through which the patient receives a DSM-IV diagnosis of anorexia nervosa (AN), BN, or EDNOS. The revised version (RAB-R)[26] has been tested for its internal consistency (range = .42–.86), interrater reliability (mean kappa = .65–.87), test-retest reliability (Pearon's r = .17–.95; M =.68), and concurrent and criterion validity. The RAB-R has been shown to have psychometric qualities equal to other comparable interviews like the Eating Disorder Examination (EDE[27]) and the Clinical Eating Disorder Rating Instrument (CEDRI[28]). Binge eating and compensatory behaviors are reported as number of days per week, rather than number of episodes. The reason for this is that both participants and interviewers often find it difficult to differentiate reliably between one continuous versus two discrete episodes. Our measure therefore is slightly more conservative and less sensitive than, for example, the EDE.

The EDI-2[29] is a self-report instrument designed to assess symptoms and related psychopathology in patients with eating disorders. The EDI is probably the most commonly used self-report instrument for eating disorders, and its reliability and validity are proven in Sweden,[30,31] as well as elsewhere.[32] For the purpose of the current study, the eating disorder symptom index (subscales 1–3) and the psychological index (subscales 4–11) were used. The Inventory of Interpersonal Problems (IIP)[33] is a self-report instrument designed to measure interpersonal distress.

The IIP has 64 items in its Swedish version, and the psychometric properties of the instrument have been shown to be satisfactory.[34] The total IIP score was used in the current study as a measure of interpersonal difficulties.

The Symptom Check List-90 (SCL-90)[35] is a 90-item self-report instrument designed to assess general psychopathology. The SCL-90 has been widely used throughout the world.[36] The global severity index (GSI) was used as a measure of general psychopathology.

The Beck Depression Inventory (BDI)[37] is probably the best-known screening instrument for depression in adolescents and adults. It was used as a more specific measure of depressive mood than the SCL-90.

BMI (kg/m^2) was calculated and a psychiatric nurse at our unit measured all the participants.

All these measures were used pretreatment and posttreatment as well as at the 1-year and 2.5-year follow-up, except for the RAB-R interview, which was used pretreatment and with a follow-up version at posttreatment and at follow-up.

The background questionnaire,[38] developed by Nevonen and Broberg for this particular study, was distributed to all the participants in the treatment research program. Questions regarding civic status, previous professional contact due to eating disorders, socioeconomic status (SES; unpublished observations), housing status, nationality, familial divorce, siblings and sports activities were used in this study. Based on the background questionnaire, the Hollingshead four-factor index of social position was calculated (unpublished observations). This index of social status is based on the combination of both parents' education (7-point scale) and current occupational level (a 9-point scale based on qualifications required, responsibilities, authority, and status). For each parent, an index is computed by summing education (multiplied by 3) and occupation (multiplied by 5). Parents' scores are averaged to a summary household SES score between 8 and 66.

The ethics committee at Sahlgrenska University Hospital (Göteborg, Sweden) approved the study.

This study was reviewed and approved by an institutional review board.

Results

Data Analysis

All the outcome variables were examined for deviations from normal distribution. Variables with skewed distribution were subjected to a transformation. All the significance tests were two-tailed and were conducted at the 5% significance level. Binge eating and compensatory behaviors were not normally distributed and they were therefore subjected to a square-foot transformation when these data were analyzed. The BMI was stable and within the normal range during the treatment trial for both IND and GRP in the intention-to-treat and the completer sample.

For comparisons of baseline values (see Table 1 for RAB-R measures and self-reports) between the two groups, t tests and chi-square tests were used.

Two outcome categories were examined: (a) the percentage of participants who had recovered and (b) the percentage of participants who were in remission. For comparisons of recovery and remission at posttreatment and follow-up between the two groups, the chi-square test was used. Recovery was defined as no binge eating and purging during the last month before the postassessment and during the 3 months before the follow-up assessments. Remission was defined as no longer meeting DSM-IV criteria for BN (including participants who had recovered).

TABLE 1. Mean and standard deviations at pretreatment, posttreatment, and at the 1 and 2.5-year follow-up for the completer sample, with ES from pretreatment to 1-year follow-up (n = 63) (IND, n = 31; GRP, n = 32)

	Pretreatment				Posttreatment				1-Year Follow-Up						2.5-Year Follow-Up			
	IND		GRP		IND		GRP		IND			GRP			IND		GRP	
RAB-R Measures	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*ES*	*M*	*SD*	*ES*	*M*	*SD*	*M*	*SD*
Binge eating Days/week*	3.7	2.0	3.9	2.0	1.4	1.6	1.9	2.4	0.9	1.4	1.62	1.6	2.3	1.07	0.8	1.4	1.8	2.3
Compensation Days/week**	3.9	2.7	2.9	2.8	1.5	2.0	2.0	2.7	0.8	1.3	1.50	1.5	2.4	0.53	0.4	0.6	1.0	1.3
Dietary restraint	1.7	0.8	1.6	1.0	1.8	1.3	1.3	1.3	0.4	0.6	1.83	0.9	1.0	0.70	0.4	0.7	0.4	0.9
Weight phobia	2.6	.72	2.6	.76	1.4	1.6	1.8	1.3	0.8	1.0	2.07	1.1	1.1	1.60	0.5	0.9	0.9	1.2
Self-reports																		
EDI-2; subscales 1–3	41.8	11.0	41.8	16.7	22.1	12.4	20.1	19.9	15.3	13.0	2.20	20.7	18.9	1.20	14.8	14.8	16.7	16.1
EDI-2; subscales 4–11	60.0	21.6	58.5	20.6	35.1	20.2	33.6	22.6	29.0	17.2	1.59	30.6	21.4	1.33	30.1	18.3	29.0	25.5
IIP total	1.3	0.5	1.1	0.4	1.0	0.4	0.9	0.5	1.0	0.4	0.66	0.8	0.5	0.67	1.1	0.6	0.9	0.5
SCL-90 GSI	1.8	0.7	1,7	0.6	1.1	0.7	1.1	0.8	1.0	0.5	1.31	1.2	0.7	0.77	0.9	0.6	0.8	0.5
BDI	21	8.5	19	8.0	11	9.7	13	10.6	12	8.1	1.08	12	9.3	0.80	11	8.7	10	9.9

Note: ES = effect size; IND = individual therapy; GRP = group therapy; RAB-R = Rating of Anorexia and Bulimia Interview-Revised; EDI-2 = Eating Disorder Inventory-2; IIP = Inventory of Interpersonal Problems; SCL-90 = Symptom Check List-90; GSI = global severity index; BDI = Beck Depression Inventory.

*Significant differences between IND and GRP at 2.5-year follow-up ($F = 4.11$; $p < .05$). **Significant differences between IND and GRP at 2.5-year follow-up ($F = 5.35$; $p < .05$).

To determine the overall effect of treatment for the two groups, based on the intention-to-treat sample, a 2 (IND and GRP) × 4 (time) repeated-measures analysis of variance (ANOVA) was used to analyze group, time, and interaction effects between groups and time on all outcome variables shown in Table 2. Analysis of covariance (ANCOVA) with baseline variables as the covariates was performed for the completer sample between the two treatment groups at posttreatment and at the 1-year and 2.5-year follow-up values, to detect differential effects on outcome variables. To control for possible effects of SSRI medication between IND and GRP on recovery, a logistic regression analysis with group as the dependent variable was performed.

Effect size (ES) was calculated as the mean differences between pretreatment and 1-year follow-up measures divided by the pooled within-group standard deviation. Small ES were defined as .20, medium effects as .50, and high effects as > .80.[39]

Participant Characteristics

At pretest, the mean age was 20.7 years (range = 18–24 years) and the mean BMI was 21.7 (SD = 2.1). All the participants binged, 73% purged by inducing vomiting, and 27% by excessive exercising or fasting according to DSM-IV criteria. The mean duration of binging and compensatory behaviors was 4.8 years (Table 3).

TABLE 2. Mean and standard deviations at pretreatment, posttreatment, and at the 1 and 2.5-year follow-up for the intention-to-treat sample, with ES from pretreatment to the 1-year follow-up (n = 86) (IND, n = 42; GRP, n = 44)

	Pretreatment				Posttreatment				1-Year Follow-Up						2.5-Year Follow-Up					
	IND		GRP		IND		GRP		IND			GRP			IND		GRP			
RAB-R Measures	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*ES*	*M*	*SD*	*ES*	*M*	*SD*	*M*	*SD*	*F*	*p* <
Binge eating Days/week	3.9	1.9	3.7	1.9	1.2	1.5	1.6	2.2	1.4	1.9	1.3	2.0	2.4	0.80	1.3	2.1	2.1	2.3	30.2	.000
Compensation Days/week	3.6	2.7	2.8	2.8	1.3	1.8	1.8	2.5	1.2	2.0	1.00	1.8	2.6	0.37	1.0	1.7	1.8	2.5	15.0	.000
Dietary restraint	1.6	0.9	1.7	1.0	1.6	1.3	1.5	1.3	0.7	0.9	1.00	1.2	1.3	0.48	0.7	0.93	0.9	1.2	17.6	.000
Weight phobia	2.6	0.7	2.5	0.8	1.3	1.3	1.8	1.3	1.1	1.2	1.53	1.4	1.2	1.09	0.8	1.1	1.4	1.3	34.6	.000
Self-reports																				
EDI-2; subscales 1–3	43	11.8	44	15.6	26	15.8	27	22.0	19	17.1	1.63	26	21.1	0.97	22	18.9	26	20.3	51.6	.000
EDI-2; subscales 4–11	61	24.5	64	27.2	42	29.7	45	36.3	35	26.4	1.02	41	34.2	0.74	38	27.1	43	36.4	36.1	.000
IIP total	1.2	0.5	1.2	0.5	1.0	0.5	1.0	0.6	1.0	0.5	0.40	0.9	0.6	0.55	1.1	0.6	1.0	0.6	8.1	.000
SCL-90 GSI	1.4	0.5	1.5	0.6	1.0	0.7	1.1	0.9	1.0	0.7	0.66	1.1	0.7	0.62	1.0	0.7	1.0	0.7	22.0	.000
BDI	21	9.3	21	10.9	13	11.6	17	14.5	14	11.1	0.68	16	13.9	0.40	13	10.5	15	14.0	19.2	.000

Note: IND = individual therapy; GRP = group therapy; ES = effect size; RAB-R = Rating of Anorexia and Bulimia Interview-Revised; EDI-2 = Eating Disorder Inventory-2; IIP = Inventory of Interpersonal Problems; SCL-90 = Symptom Check List-90; GSI = global severity index; BDI = Beck Depression Inventory.

TABLE 3. Participant characteristics for the intention-to-treat sample

	IND ($n = 42$)		GRP ($n = 44$)	
	M	*SD*	*M*	*SD*
Age	20.3	2.0	21.1	2.0
Binging, days/week	3.9	1.9	3.7	1.9
Compensatory Behavior, days/week	3.6	2.7	2.8	2.8
Duration (years)	4.5	2.8	5.1	2.9
BMI	21.9	2.1	21.5	2.1
	%		*%*	
Civic status (single)	65		67	
SES (Hollingshead) ($\geq$29)	45		47	
Nationality (Swedish)	65		67	
Familial divorce (yes)	42		53	
Sports activities ($\geq$2)	66		59	

Note: IND = individual therapy; GRP = group therapy; BMI = body mass index; SES = socioeconomic status.

Participants with Swedish nationality represented 66% of the sample. Fifty-three percent had been living with both parents during their childhood and adolescence. Twenty-two percent of the women were junior high-school graduates, 66% had completed high school, and 12% had a college or university degree. Thirty-six percent lived with their parents, whereas 33% had their own apartment. No significant pretreatment differences were found between the IND and GRP groups in terms of background, or any of the outcome variables.

Intention-to-Treat and Completer Samples

Analyses were performed on an intention-to-treat sample ($n = 86$) in which the pretreatment values were carried forward if there were missing posttreatment or follow-up values, and on the per-protocol sample ($n = 63$), which comprised participants who had completed treatment (i.e., had attended $\geq$ 15 sessions and had not missed more than two consecutive sessions in either part of the treatment) and had completed posttreatment and follow-up assessments. Incomplete treatment ($n =$ 11 [13%]) was defined as participants who had attended 5–14 sessions (a median of 9 sessions). A dropout was defined as a participant who received less than five sessions. The dropout rate was 10% ($n = 8$) with 3 subjects from IND and 5 subjects from GRP.

Intention-to-Treat Sample

At posttreatment, 31% had recovered in IND ($n =$ 13) versus 41% in GRP ($n = 18$). At the 1-year follow-up, 33% in IND ($n = 14$) and 27% in GRP ($n = 12$) had recovered. At the 2.5-year follow-up, 38% in IND ($n = 16$) and 27% in GRP (n=12) had recovered (Figure 2).

The analysis also showed that 83% in IND ($n =$ 35) and 71% in GRP ($n = 31$) were in remission (including recovered) at posttreatment. At the 1-year follow-up, 74% in IND ($n = 31$) and 57% in GRP ($n = 25$) were in remission, and at the 2.5-year follow-up this was true for 79% in IND ($n = 33$) and 55% in GRP ($n = 24$) (Figure 2). We found no significant differences between IND and GRP in terms of recovery or remission rates.

A repeated-measures ANOVA revealed an overall main effect for time on eating disorder symptoms, interpersonal problems, and concomitant psychopathology and no interaction effect between groups and time (Table 2). The mean and standard deviations at pretreatment and posttreatment and follow-up together with ES from pretreatment to 1-year follow-up are shown in Table 2.

For IND ES from pretreatment to 1-year follow-up ranged from .40 (interpersonal problems) to -1.63 (EDI-2 index 1–3) and for GRP from .37 (compensation days per week) to -1.09 (weight phobia). As shown in Table 2, overall IND showed higher ES than GRP.

Completer Sample

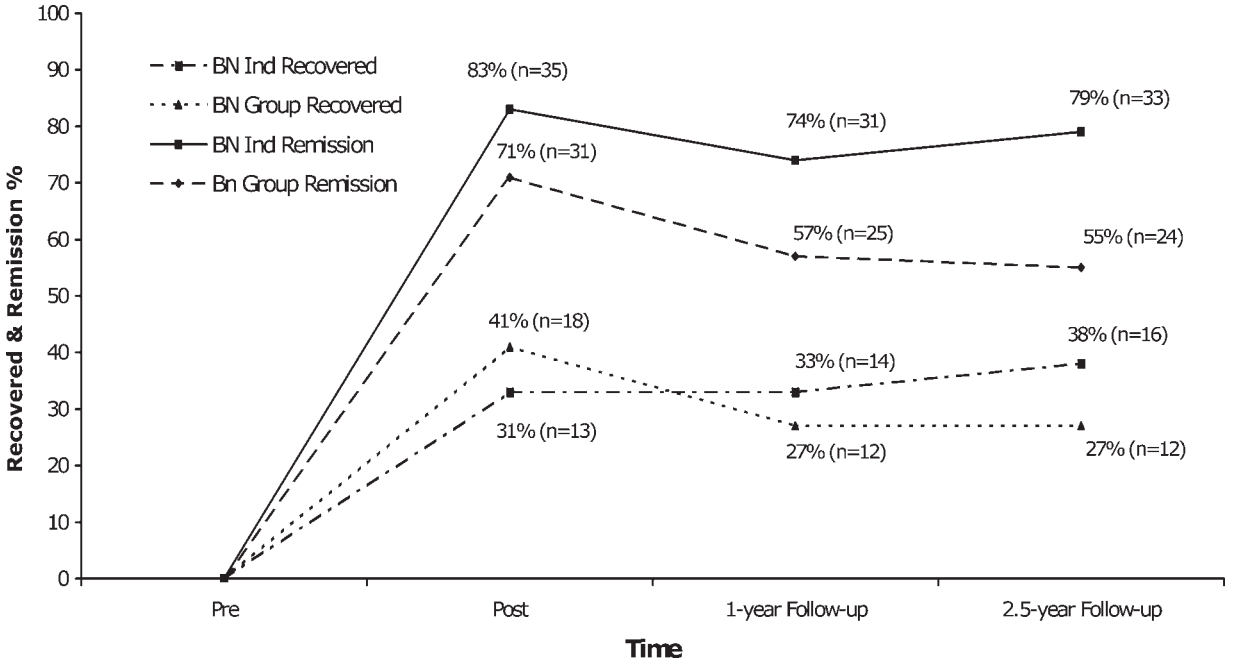
Sixty-three participants (IND, $n = 31$; GRP, $n =$ 32) of 86 (73%) were completers, according to our criteria. The recovery rate was 26% in IND ($n = 8$) and 28% in GRP ($n = 9$) at posttreatment. At the 1-year follow-up, 52% in IND ($n = 16$) and 37.5% ($n =$ 12) in GRP had recovered, and at the 2.5-year follow-up, 47% in IND ($n = 14$) and 37% in GRP ($n =$ 10) had recovered.

Remission (including recovery) rates were 71% in IND ($n = 22$) and 69% in GRP ($n = 22$) at posttreatment. The 1-year follow-up data showed that 90% were in remission in IND ($n = 28$) and 78% in GRP ($n = 25$). At the 2.5-year follow-up, 87% in IND ($n =$ 27) and 84% in GRP ($n = 27$) were in remission.

The mean and standard deviations at pretreatment and posttreatment and at the 1-year and 2.5-year follow-up, with ES from pretreatment to 1-year follow-up, are shown in Table 1. ANCOVA with pretreatment values as the covariate revealed significant differences between IND and GRP at the 2.5-year follow-up for binge eating ($F = 4.11$; $p <$ .05) and compensatory behaviors ($F = 5.35$; $p < .05$) with a higher means for GRP.

IND showed medium to high ES from pretreatment to 1-year follow-up, ranging from 0.66 (interpersonal problems) to 2.20 (EDI-2 index 1–3), and medium to high, ranging from .53 (compensation days per week) to 1.60 (weight phobia) for GRP. On

FIGURE 2. Percentage of participants who recovered and were in remission in the intention-to-treat sample ($n = 86$) (IND, $n = 42$; GRP, $n = 44$). IND = individual therapy; GRP = group therapy.



the whole, self-report measures indicated a substantial and sustained improvement in eating disorder symptoms, general psychopathology, and interpersonal problems.

Logistic regression analyses showed no significant effect of medication on recovery, between IND and GRP at posttreatment or follow-up assessments.

Conclusion

The current study investigated the effectiveness of GRP versus IND, using a sequenced treatment model including CBT followed by IPT for patients with BN. The rationale behind our sequenced treatment model was to reduce eating disorder symptoms (CBT) as well as interpersonal problems and concomitant psychopathology (IPT) at posttreatment, with a continued, or at least sustained, improvement at follow-up. A particular strength in the current study is the number of complete datasets. Eighty-six percent completed the posttreatment and 1-year follow-up assessments and 80% completed the 2.5-year follow-up assessment.

In terms of recovery and remission, both IND and GRP were effective at posttreatment. Neither the intention-to-treat nor the completer analysis revealed significant differences between groups at posttreatment. Clinical ratings and self-reports of eating disorder symptoms in the intention-to-treat sample and the completer sample demonstrated substantial improvement at posttreatment for both IND and GRP, with the exception of dietary restraint, which showed no change from pretreatment to posttreatment for IND and only a small change for GRP in the intention-to-treat analysis, and only minor changes in the analysis based on the completer sample. Dietary restraint was defined as the frequency and amount of limiting food consumption to influence weight and/or shape. The answers range from "does not limit eating at all" to "constantly limit eating." The mean duration of our subjects is 4.8 years and distorted eating patterns start before the eating disorder is established. Eating habits and patterns seem to take longer to change compared with binging and purging behavior. Dietary restraints decrease; however, noticeably during follow-up.

The 1-year follow-up revealed an increased recovery for IND as opposed to a decreased recovery for GRP in the intention-to-treat analysis. Intention-to-treat remission rates decreased for both groups from posttreatment to the 1-year follow-up, in contrast to the completer sample in which both IND and GRP recovery and remission rates increased. Interpersonal problems measured with the IIP revealed medium effect changes from

pretreatment to 1-year follow-up for both the intention-to-treat and the completer samples and this may reflect a process of accepting and expressing interpersonal experiences, and trying out other ways of functioning also after treatment was finished.

The 2.5-year follow-up intention-to-treat analysis showed a stabilized recovery rate for GRP and increased recovery from the 1-year to the 2.5-year follow-up for IND. Remission rates increased for IND, whereas GRP showed a small decrease from the 1-year to the 2.5-year follow-up. In the follow-up analyses based on the completer sample, IND showed a tendency, even though not statistically significant, towards more individuals recovered and more in remission compared with GRP at both the 1-year and 2.5-year follow-ups. Also in the completer sample, IND was superior to GRP in terms of reducing bulimic symptoms. We found significant differences in favor of IND, in terms of expert ratings of both binge eating and compensatory behaviors, at the 2.5-year follow-up. This result is in line with Chen et al.[5] who showed that group CBT is slower than individual CBT in producing abstinence from bulimic behavior. One explanation for the advantage of IND over GRP could be that individual treatment, although based on manual-based treatment, can more easily be tailored to the specific needs of the individual patient.

We found no significant difference between IND and GRP in terms of treatment dropout, which is in line with most studies.[6] Despite the fact that agreeing on a definition of dropping out is essential in treatment research,[6] the specification of what is meant by "dropping out of treatment" is often not made explicit, which makes comparisons between studies difficult. Based on our definition of dropout (i.e., not having entered treatment, or quitting after less than five sessions), the dropout rate was 10%, which is low compared with most reports. However, in all, 23% of the participants did not comply with the treatment protocol (i.e., they participated in less than 15 of 23 sessions).

To summarize, the comparison between IND and GRP, in which patients were randomized to IND or GRP and all therapists delivered both treatments, resulted in an almost complete draw in the short run and a tendency towards long-term differential advantages. On the one hand, there was a tendency for IND patients to improve more than GRP patients across most measures, from post-treatment to the 1-year and 2.5-year follow-ups, indicating that IND has advantages over GRP. Conversely, patients with more interpersonal problems and less severe bulimic symptoms tended to gain more from GRP than from IND,[19] a result that is supported by our finding that GRP was somewhat superior to IND when treating patients with EDNOS Type III using the same sequenced treatment model.[40] One could argue that because GRP is cost-effective,[41] it should be the first step in a stepped care approach,[5] especially if there is evidence of relatively more interpersonal problems and less severe bulimic symptomatolgy.

To our knowledge, except for our own pilot study,[20] there are no previous studies that have sequenced two different psychotherapy approaches immediately after one another within one treatment, in the field of eating disorders. The results in terms of reduced binge eating and compensatory behaviors on objective measures from pretreatment to posttreatment and follow-up are, for those in IND, equal to or better than what has been reported in studies using individual CBT of similar duration.[9] Our rationale for designing the treatment was that many of our patients were acutely aware of their interpersonal problems, and dissatisfied with a treatment focusing on disordered eating alone. This led both to patients dropping out of treatment, and to the relapse of bulimic symptoms during the year after treatment completion. The results presented in the current study, as well as those in a smaller group of patients with EDNOS Type III,[40] indicate (a) that the model is not inferior to CBT, which is a reassuring first step, and (b) that the time has come to put the model to a randomized controlled trial against pure CBT.

Nineteen participants received psychopharmacologic medication, 16 of whom completed the protocol and 3 of whom received incomplete treatment. Separate analyses showed that controlling for the possible effects of medication did not change the results as reported in the current study.

Our study has limitations. The 1-year follow-up assessment was a clinical evaluation in which the therapist made a follow-up interview, which can have biased the result. Conversely, independent investigators did the interview-based assessments at posttreatment and the 2.5-year-follow-up, and interview-based assessments correlated well with patients' self-reports of bulimic symptoms as well as concomitant psychopathology. Another limitation was that we used a crude way of establishing concordance between therapists and the treatment manual, which only gives us an indication that there was an adherence between therapists and the sequenced treatment manual.

Future research should focus on comparing sequenced CBT/IPT (individual or group) with "pure" treatments such as CBT or IPT, from at least two different treatment centers with sufficient sample sizes.

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